CLAIMS

What is claimed is:

1. A power supply circuit, the circuit comprising:

an active power factor correction circuit, the active power factor correction circuit having a controller; and

an inrush current control circuit, the inrush control circuit comprising at least one insulated gate bipolar transistor (IGBT) connectable to the controller, wherein each IGBT comprises a gate.

2. A power supply circuit as in claim 1 wherein the power circuit comprises a boost pre-regulator.

3. A power supply circuit as in claim 1 wherein the controller comprises an UC3854 integrated circuit.

4. A power supply circuit as in claim 1 wherein the inrush current control circuit further comprises at least one gate driver connectable to the controller.

5. A power supply circuit as in claim 4 wherein the at least one gate driver comprises a charge pump circuit.

6. A power supply circuit as in claim 4 wherein the at least one gate driver comprises a power amplifier.

7. A power supply circuit as in claim 1 wherein the inrush current control circuit further comprises at least one passive current limiting device.

8. A power supply circuit as in claim 7 wherein the at least one passive current limiting device comprises a positive temperature coefficient (PTC) resistor.

9. A method for controlling inrush current in a power factor correction control circuit, the method comprising the steps of:

determining if an inrush current condition exists;

based upon a determination that an inrush current condition does exists then passively controlling inrush current with a passive device for a predetermined amount of time;

generating a power factor control signal; and

implementing the power factor control signal to actively control the inrush current, wherein the step of actively controlling the inrush current shunts output current around the passive device and through an active device.

10. A method as in claim 9 wherein the step of passively controlling inrush current further comprises the step of passing current through a passive device, the passive device resistance having a positive temperature coefficient (PTC).

11. A method as in claim 9 wherein the step of generating the power factor control signal further comprises the steps of:

charging at least one integrated circuit (IC) power capacitor to a predetermined voltage level; and

enabling at least on IC associated with the at least one IC power capacitor.

12. A method as in claim 11 wherein the step enabling the at least one IC further comprises the step of enabling an UC3854 IC drive output.

13. A method as in claim 12 wherein the step of enabling the UC3854 IC drive output further comprises the steps of:

determining an input current;

comparing the input current with a predetermined current level; and

disabling the UC3854 IC if the input current exceeds the predetermined level.

14. A method as in claim 9 wherein the step of shunting current around the passive device and through the active device further comprises the step of substantially shunting the output current through an insulated gate bipolar transistor (IGBT).

15. An active current inrush limiting circuit for controlling surge current in a power factor correction control system, the circuit comprising:

a passive current limiting device; and

a controller, the controller adapted to controlling:

a power factor correction control circuit;

an active current limiting device, wherein the active current limiting device is connectable

in parallel with the passive current limiting device.

16. An active current inrush limiting circuit as in claim 15 wherein the passive current limiting device comprises a resistive component having a positive temperature coefficient.

17. An active current inrush limiting circuit as in claim 15 wherein the controller comprises an UC3584 IC.

18. An active current inrush limiting circuit as in claim 15 wherein the active current limiting device comprises at least one insulated gate bipolar transistor (IGBT) circuit.

19. An active current inrush limiting circuit as in claim 18 wherein the IGBT circuit comprises at least one IGBT gate driver.

20. An active current inrush limiting circuit as in claim 19 wherein the at least one IGBT gate driver comprises at least one charge pump circuit.

21. An active current inrush limiting circuit as in claim 19 wherein the at least one IGBT gate driver circuit comprises at least one high voltage driver IC.

22. An active current inrush limiting circuit as in claim 19 wherein the at least one IGBT gate driver circuit comprises at least one floating power suppply.